$NOTRUNCATE

PROGRAM NWPOSA

$INCLUDE:'MPARMLIN'

C PARAMETER (IBLOCK=20000)

C

C

C\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

C

C TWO-DIMENSIONAL PARTIAL ORDER SCALOGRAM ANALYSIS

C WITH BASE COORDINATES (POSAC)

C

C A VERSION WITH EXTERNAL VARIABLES

C

C\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

C

C PURPOSE

C

C GIVEN P , A PARTIALLY ORDERED SET OF PROFILES

C IN NV VARIABLES , THIS PROGRAM TRIES TO REDUCE

C THE NUMBER OF VARIABLES FROM NV TO 2 .

C MORE PRECISELY , TO EACH PROFILE (C1,C2,...,CNV)

C IN P WILL CORRESPOND A PROFILE (X,Y) IN R\*\*2

C SUCH THAT , THROUGH THIS APPLICATION , THE PARTIAL

C ORDER IN P IS PRESERVED AS WELL AS POSSIBLE .

C X AND Y ARE CALLED BASE COORDINATES .

C

C FURTHERMORE , FOR SPECIFIED CATEGORIES OF A GIVEN

C EXTERNAL VARIABLE (A VARIABLE NOT IN THE ORIGINAL SET

C OF THE NV VARIABLES) REPRESENTING AN EXTERNAL CRITERION

C OR TRAIT , TRAIT-DIAGRAMS ARE PRESENTED DEPICTING THE

C PROPORTION OF SUBJECTS POSSESSING THAT TRAIT AMONG

C ALL THOSE SHARING THE SAME PROFILE IN NV VARIABLES .

C THE TRAIT MAY BE SPECIFIED ALSO AS A COMBINATION

C (INTERSECTION) OF RESPONSE CATEGORIES FROM DIFFERENT

C EXTERNAL VARIABLES .

C

C\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

C

C DESCRIPTION OF THE RESULTS

C

C - SOME INFORMATION ON THE INPUT DIRECTIVES AND PARAMETERS

C - A LIST OF THE COMPUTED PROFILES WITH THEIR COMPARABILITY RELATIONS

C - TWO COEFFICIENTS 'CORREP' AND 'SCODIS' , WHICH SHOW THE DEGREE OF

C FIT BETWEEN THE DATA AND THE COORDINATES COMPUTED BY POSAC.

C - A LIST CONTAINING THE COMPUTED COORDINATES OF EACH PROFILE.

C - COEFICIENTS OF WEAK MONOTONICITY BETWEN EACH OBSERVED ITEM

C AND THE FACTORS : J,L,X,Y,P AND Q

C - A TWO-DIMENSIONAL PLOT OF THE SCALOGRAM.

C - A DIAGRAM FOR EACH ITEM (VARIABLE).

C - OPTIONALLY , TWO TRAIT-DIAGRAM (ABSOLUTE AND RELATIVE) FOR EACH

C - EXTERNAL CRITERION.

C

C\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

C

C LIMITATIONS

C

C 1. MAXIMUM NO. OF INTERNAL VARIABLES IS 20 (INTMAX).

C

C 2. VALUE OF EACH VARIABLE SHOULD BE BETWEEN 1 AND 99 .

C

C 3. MAXIMUM LENGTH OF CASE ID IS 10 CHARACTERS (IDLEN).

C

C 4. MAXIMUM NO. OF CASE ID'S IS 500 (IDMAX).

C

C 5. MAXIMUM LENGTH OF INTERNAL VARIABLE LABELS IS 40 CHARACTERS (LABLEN).

C

C 6. MAXIMUM NUMBER OF INTERVALS FOR EXTERNAL VARIABLES IS 10 (MAXINTRV).

C

C 7. MAXIMUM NUMBER OF INTERVALS FOR DEFINING EXTERNAL TRAIT IS 10 (MAXINTRV).

C

C 8. MAXIMUM LENGTH OF EXTERNAL TRAIT LABELS IS 40 CHARACTERS (LABLEN).

C

C 9. MAXIMUM NUMBER OF EXTERNAL MAPS IS 30 (MAXEXTMP).

C

C 10. MAXIMUM LENGTH OF INPUT FORMAT IS 100 CHARACTERS (LENIFOR).

C

C 11. MAXIMUM NUMBER OF DIMENSIONS IS 2 (M).

C

C\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

C

C PROCEDURE CARD

C

C A. TITLE CARD (COLUMNS 1 TO 80)

C

C B. PARAMETER CARD IN FORMAT 20I4 CONTAINING THE FOLLOWING

C INFORMATION

C 1) NV -

C NUMBER OF VARIABLES (INCLUDING THE EXTERNALS)

C 2) IDATA -

C IF IDATA=0 OR BLANK DATA ARE SUBJECTS

C IF IDATA.NE.0 DATA ARE PROFILES.

C 3) LOWFRQ -

C IF LOWFRQ=0 OR BLANK NO REJECTING PROFILES

C IF LOWFRQ.NE.0 REJECTING PROFILES WHOSE

C FREQUENCY IS .LE.LOWFRQ.

C 4) MISSNG

C IF MISSNG=0 OR BLANK 0 IS MISSING VALUE

C IF MISSNG.NE.0 MINIMAL AND MAXIMAL CATEGORIES

C HAVE TO BE SPECIFIED (SEE LINE D. BELOW)

C 5) IPOWER

C IF IPOWER=0 OR BLANK POWER OF THE BALANCING

C WEIGHTS ARE : ND1=4 FOR INCOMPARABLES

C ND2=4 FOR COMPARABLES

C IF IPOWER.NE.0 ND1 AND ND2 HAVE TO BE

C SPECIFIED (SEE LINE E. BELOW)

C 6) ITEMDGPLT

C IF ITEMDGPLT = 0 OR BLANK, ITEM DIAGRAMS ARE NOT

C PLOTTED

C IF ITEMDGPLT = 1, ITEM DIAGRAMS ARE PLOTTED.

C 7) NLAB -

C NUMBER OF VARIABLE LABELS . (SEE LINE F. BELOW)

C 8) NXT NUMBER OF EXTERNAL VARIABLES. (SEE LINE G. BELOW)

C 9) MAP NUMBER OF EXTERNAL TRAIT MAPS. (SEE LINE H. BELOW)

C 10) IEXTDIAG -

C IF IEXTDIAG=0 OR BLANK DO NOT PRINT EXTERNAL DIAGRAMS

C IF IEXTDIAG.NE.0 PRINT EXTERNAL DIAGRAMS

C 11) ITABLE

C IF ITABLE=0 OR BLANK COMPLETE PROCESS

C IF ITABLE.NE.0 ONLY LIST OF PROFILES

C WITH SOME INFORMATION.

C 12) INITX

C IF INITX=0 OR BLANK FIRST APPROXIMATION

C COMPUTED BY THE PROGRAM

C IF INITX.NE.0 FIRST APPROXIMATION GIVEN

C BY THE USER (SEE LINE I. BELOW)

C 13) IBOXSTRNG -

C IF IBOXSTRNG=0 OR BLANK USE DEFAULT GRAPHICS CHARACTERS

C IF IBOXSTRNG.NE.0 SUPPLY USER GRAPHICS CHARACTERS

C (SEE LINE J. BELOW)

C 14) IFF -

C IF IFF=0 OR BLANK USE DEFAULT FORM-FEED CHARACTER CHAR(12)

C IF IFF.NE.0 SUPPLY OTHER FORM-FEED CHARACTER

C (SEE LINE K. BELOW)

C 15) ITRM

C ITRM IS THE MAXIMUM NUMBER OF ITERATIONS TO BE USED.

C IF ITRM IS 0 OR BLANK, A DEFAULT VALUE OF 15 IS USED.

C 16) IWRTFLS

C IF IWRTFLS = 0, THE 4 ASCII OUTPUT FILES ARE NOT WRITTEN.

C IF IWRTFLS > 0, THE 4 ASCII OUTPUT FILES WITH EXTENSION .PSC

C ARE WRITTEN.

C 17) IFSHMR

C IF IFSHMR = 0, PROGRAM SHEMOR IS NOT TO BE RUN OR IS TO BE

C RUN USING DEFAULT RECODING CATEGORIES.

C IF IFSHMR = 1, PROGRAM SHEMOR IS TO BE RUN TAKING

C DIRECTIVES FROM THE END OF THIS FILE

C FOLLOWING LINE CONTAINING THE WORD SHEMOR

C IN COLUMNS 1-6 OF A LINE FOLLOWING ALL

C INFORMATION NEEDED FOR POSAC.

C (SEE LINE L. BELOW)

C 18) IFRQONE -

C IF IFRQONE = 0 OR BLANK, ACTUAL FREQUENCIES ARE USED.

C IF IFRQONE = 1, FREQUENCIES ARE ALL SET TO 1 (IF NOT

C REJECTED WHERE LOWFRQ IS SET).

C

C

C C. INPUT FORMAT FOR DATA (IN I-FORMAT)

C IF DATA ARE PROFILES THE FIRST SPECIFICATION

C MUST BE FOR THE PROFILE FREQUENCY

C IF DATA CONTAINS CASE ID IT SHOULD APPEAR AS THE FIRST

C ITEM IN THE FORMAT AND SHOULD BE IN A-FORMAT.

C

C D1. (REQUIRED ONLY IF MISSNG.NE.0)

C MINIMAL CATEGORY FOR EACH VARIABLE IN FORMAT 20I4

C

C D2. (REQUIRED ONLY IF MISSNG.NE.0)

C MAXIMAL CATEGORY FOR EACH VARIABLE IN FORMAT 20I4

C

C E. (REQUIRED ONLY IF IPOWER.NE.0)

C ND1,ND2 IN FORMAT 2I4

C ND1 BALANCING WEIGHT POWER FOR INCOMPARABLES 0.LE.ND1.LE.4

C ND2 BALANCING WEIGHT POWER FOR COMPARABLES 0.LE.ND2.LE.4

C

C F. (REQUIRED ONLY IF NLAB.NE.0)

C VARIABLE LABELS - A NUMBER (NLAB ABOVE) OF LINES IN THE FOLLOWING

C FORMAT : COL. 1- 4 - VARIABLE NO.

C COL. 11-50 - VARIABLE LABEL.

C

C G. (REQUIRED ONLY IF NXT.NE.0)

C HERE INSERT NXT CARDS TO DEFINE THE ADMISSIBLE CATEGORIES

C OF EACH EXTERNAL VARIABLE . THESE CATEGORIES MAY BE

C DEFINED AS A UNION OF SEVERAL INTERVALS

C FOR EACH CARD GIVE THE FOLLOWING INFORMATION IN FORMAT 20I4

C SERIAL NUMBER OF THE EXTERNAL VARIABLE,NUMBER OF INTERVALS,

C INTERVAL1,INTERVAL2,.....

C (EACH INTERVAL IS COMPOSED BY TWO NUMBERS . A SINGLE

C CATEGORY CAN BE DEFINED BY TWO EQUAL NUMBERS)

C THE NUMBER OF INTERVALS IS LIMITED TO 10

C

C H. (REQUIRED ONLY IF MAP.NE.0)

C HERE INSERT MAP\*(NXT+1) CARDS

C FOR EACH MAP GIVE :

C -A LABEL CARD TO IDENTIFY THE MAP (UP TO 40 CHARACTERS)

C -NXT CARDS WHERE IN EACH CARD ARE DEFINED THE CATEGORIES

C DEFINING THE TRAIT IN THIS EXTERNAL VARIABLE

C THE FORMAT IS AS IN G. 20I4

C SERIAL NUMBER OF THE EXTERNAL VARIABLE,NUMBER OF INTERVALS,

C INTERVAL1,INTERVAL2,.....

C

C

C I1. (REQUIRED ONLY IF INITX.NE.0)

C INPUT FORMAT FOR INITIAL APPROXIMATION

C

C I2. (REQUIRED ONLY IF INITX.NE.0)

C INITIAL APPROXIMATION

C X AND Y COORDINATES FOR EACH PROFILE

C ACCORDING TO THE INPUT FORMAT 9A.

C

C J. (REQUIRED ONLY IF IBOXSTRNG.NE.0)

C HERE INSERT ONE LINE OF 8 CHARACTERS FOR PRINTING DIAGRAMS' FRAMES

C IN THE FOLLOWING ORDER :TOP,BOTTOM,LEFT,RIGHT

C TOPLEFT,TOPRIGHT,BOTTOMLEFT,BOTTOMRIGHT

C

C K. (REQUIRED ONLY IF IFF.NE.0)

C HERE INSERT ONE LINE OF ONE CHARACTER WHICH WILL SUBSTITUTE ALL

C DEFAULT FORM-FEED CHARACTERS (CHAR(12)) IN OUTPUT PRODUCED

C BY PROGRAM.

C

C

C L. (DIRECTIVES FOR PROGRAM SHEMOR. REQUIRED ONLY IF IFSHMR IS NOT 0).

C THE FIRST LINE CONTAINS THE WORD SHEMOR IN COLUMNS 1-6.

C THE FIRST SENTENCE INDICATES THE RECORD LENGTH OF RAW DATA 'OLDDAT'

C FOR EXAMPLE :

C RECORD LENGTH 120

C IF SUCH A SENTENCE IS ABSENT THE DEFAULT IS 80

C

C THE FOLLOWING SENTENCES INDICATE THE RECODING OF THE ORIGINAL

C COORDINATES X Y J L BEFORE THEY ARE ADDED TO RAW DATA

C THE TYPE OF SUCH A SENTENCE IS :

C

C FOR V1,V2,... RECODE N11 THRU N12 = L1, N21 THRU N22=L2 ,

C N31 THRU N32 =L3 , ......... , NM1 THRU NM2 = LM .

C

C WHERE :

C THE VARIABLE LIST V1,V2,... IS THE LIST X,Y,J,L OR A PART OF IT

C THE NUMBERS NI1,NI2,LI (I=1,...,M) ARE INTEGER NUMBERS

C FOR EXAMPLE :

C

C FOR X,Y RECODE 0 THRU 45 = 1, 46 THRU 75 =2, 76 THRU 100= 3.

C FOR J RECODE 0 THRU 60 =1 , 61 THRU 110 =2,111 THRU 150 = 3,

C 151 THRU 200 = 4 .

C FOR L RECODE 0 THRU 100 =1 , 101 THRU 200 = 2 .

C

C HERE ALSO THERE ARE DEFAULTS :

C

C FOR X,Y RECODE 0 THRU 25 = 1 , 26 THRU 50 = 2 ,

C 51 THRU 75 = 3 , 76 THRU 100 = 4 .

C

C FOR J,L RECODE 0 THRU 50 = 1 , 51 THRU 100 = 2 ,

C 101 THRU 150 = 3 , 151 THRU 200 = 4 .

C

C\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

C

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C

C\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

C

C PROGRAM WRITTEN IN FORTRAN 77 BY REUVEN AMAR FROM

C THE ISRAEL INSTITUTE OF APPLIED SOCIAL REASEARCH JERUSALEM

C

C \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

C \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

C

C EXAMPLE OF INPUT DIRECTIVES FOR PROGRAMS 'POSAC' AND 'SHEMOR'

C -------------------------------------------------------------

C

C //////////////////////// FOR 'POSAC' /////////////////////////////////

C / POSAC ON 6 VARIABLES (ITEMS)

C / 6

C /(91X,4I1,2X,2I1,/)

C //////////////////////// FOR 'SHEMOR' ////////////////////////////////

C / RECORD LENGTH 128

C / FOR X,Y RECODE 0 THRU 11 =1,12 THRU 22=2,23 THRU 33=3,34 THRU 44=4,

C / 45 THRU 55=5,56 THRU 66=6,67 THRU 77=7,78 THRU 88=8,

C / 89 THRU 100=9 .

C / FOR J,L RECODE 0 THRU 22 =1,23 THRU 44=2,45 THRU 66=3,67 THRU 88=4,

C / 89 THRU 110=5,111 THRU 132=6,133 THRU 154=7,

C / 155 THRU 176=8,177 THRU 200=9 .

C /----------- END OF RECORD ---------(END OF 'SHEMOR' DIRECTIVES)

C ///////////////// FOR 'POSAC' (WITH EXTERNAL VARIABLES) //////////////

C / POSAC ON 7 INT. VAR. AND 2 EXT. VAR. WITH 4 EXT. MAPS

C / 9 0 0 0 0 0 2 4

C /(104X,7I1,/,T6,I1,T15,I1)

C / 8 1 0 9

C / 9 1 0 9

C /MALES UNDER 40 Y. OF AGE

C / 8 1 1 1

C / 9 1 1 4

C /MALES OVER 40 Y. OF AGE

C / 8 1 1 1

C / 9 1 5 9

C /FEM. UNDER 40 Y. OF AGE

C / 8 1 2 2

C / 9 1 1 4

C /FEM. OVER 40 Y. OF AGE

C / 8 1 2 2

C / 9 1 5 9

C //////////////////////////////////////////////////////////////////////

C\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*